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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,233	07/18/2006	Claudia Barbeln	2003P12201WOUS	2970

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Siemens Corporation  
Intellectual Property Department  
170 Wood Avenue South  
Iselin, NJ 08830

EXAMINER
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KIM, CRAIG SANG

ART UNIT	PAPER NUMBER
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4137

MAIL DATE	DELIVERY MODE
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04/30/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/586,233	<b>Applicant(s)</b> BARBELN ET AL.	
	<b>Examiner</b> CRAIG KIM	<b>Art Unit</b> 4137	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12-16-2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 16-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>7-18-06</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This office action is in response to amended application filed on 7/18/2006.

Claims 1-15 were canceled. Claims 16-27 are under consideration.

#### ***Drawings***

1. The drawings are objected to because Figure 1 does not clearly show how the invention fits within a combustor. The figure shows the heat shields at an angle without any relationship as to where they are located within the combustor. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Objections***

2. Claims 20-21 are objected to because of the following informalities: claim 20 refers to canceled claim 4, and claim 21 refers to claim 20. Appropriate correction is required.
3. Claims 27 is objected to because of the following informalities:
  - a. Grove should be groove. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 27 is rejected under 35 U.S.C. 102(b) as being disclosed by Maghon (US Patent 5,431,020, hereinafter Maghon).

Regarding claim 27:

Maghon is a heat shield on a load bearing structure with the following limitations:

- *a heat shield retaining element (Fig. 4, 3) configured to engage grooves (Fig. 1, 4);*
- *a surface (Fig. 2, 19) normal to direction that extends in the direction of the opening of the groove, the groove is rounded and it's surface is normal to parts of it's opening;*
- *a securing section (Fig. 3, 22); that can be used with fasteners such as bolts.*

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maghon in view of Gerendas et al. (US Patent Application 2003/0089115, hereinafter Gerendas) and Schmahl et al. (US Patent Application 2003/0079475, hereinafter Schmahl).

Regarding claim 16:

Maghon teaches:

- *a support structure (Fig. 2, 1) that extends in a peripheral and axial direction;*
- *a plurality of heat shield elements (Fig. 2, 2) arranged on the support structure (Fig. 2, 1) abutting each other, and having axial and peripheral gaps;*

Maghon fails to teach the use of sealing elements in the peripheral and axial gaps which are at different distances from the support structure.

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Gerendas is a heat shield arrangement with the following limitations:

- *sealing elements (Fig. 1, 3) for axial gaps;*
- *a different distance from the support structure for sealing elements for axial gaps;*

At the time of the invention it was known that using a strip shaped sealing element arranged underneath the heat shield would provide improved sealing under the influence of thermal expansion or displacement of times with the sealing element always being forced against the rims of the tile as taught by Gerendas (Col. 4, lines 1-11). Therefore, it would have been obvious to one of ordinary skill at the time of invention to provide Maghon with strip shaped sealing elements for the axial gaps.

Schmahl is a lining for the inner walls of a combustion chamber that teaches the following limitations:

- *plurality sealing elements (Fig. 1, 3) that seal peripheral gaps;*

At the time of the invention it was known that using the sealing elements from Schmahl would prevent hot gas from penetrating the region between the shielding elements and the support structure and it would allow for more control of the cooling air. Further, only a small amount of air would be needed and would provide a considerable economic benefit (Paragraph 0009). Therefore it would have been obvious to one of ordinary skill in the art to provide Maghon with both the strip shaped sealing elements for the axial gaps and the peripheral sealing elements provided by Schmahl.

Regarding claim 17:

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Reference the above comments regarding claim 16.

Gerendas teaches:

*a sealing elements (Fig. 1, 3) that seals the axial gaps are arranged between the support structure (Fig. 1, 2) and heat shield elements (Fig. 1, 1).*

Regarding claim 18:

Reference the above comments regarding claim 16.

Maghon teaches:

*a plurality of element retainers (Fig. 2, 3) which secure the heat shield elements on the support structure in the peripheral and axial directions.*

Regarding claim 19:

Reference the above comments regarding claim 16.

Gerendas teaches:

*a plurality of second element retainers (Fig. 1, 6) for securing the heat shield elements in the axial direction of the support structure and configured to retain the sealing elements in the axial gaps;*

Schmahl teaches:

*a plurality of first element retainers (Fig. 2, 5) for securing the heat shield elements (Fig. 1, 1) in the peripheral direction of the support structure.*

Regarding claims 20-21:

Claim 20 is dependent on claim 4, which is a canceled claim. Claim 20 was therefore examined under the assumption that it was dependent on claim 19.

Maghon teaches:

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- *a support structure (Fig. 2, 1) with peripheral grooves (Fig. 2, 4);*
- *second element retainers (Fig. 2, 12) configured as clamps;*
- *the clamp section inserted into a peripheral groove in the support structure (Fig. 2);*

Maghon fails to teach sealing elements that are inserted into the clamps and engaged by the clamp.

Schmahl teaches:

*the use of sealing elements (Fig. 1, 3) between the gaps of tiles held in by holders (Fig. 3, 5).*

Schmahl teaches that it is advantageous to use sealing elements as they are effective for sealing off gaps (Paragraph 0011). It was well known in the art at the time of the invention that sealing elements prevent the loss of cooling air. It would have been obvious at the time of the invention to one of ordinary skill in the art to combine Maghon with sealing elements. While Schmahl uses holders, the retainers used for Maghon could be used to engage the sealing elements and properly restrain them. Another US Patent that further also anticipates the clamp is Bradner (US Patent 2,910,155). It is a fastener that is used within a peripheral groove (Fig. 1, 16) and engages a recess (Fig. 1, 21) and engaging elements (Fig. 3, 15) to clamp to a sealing element.

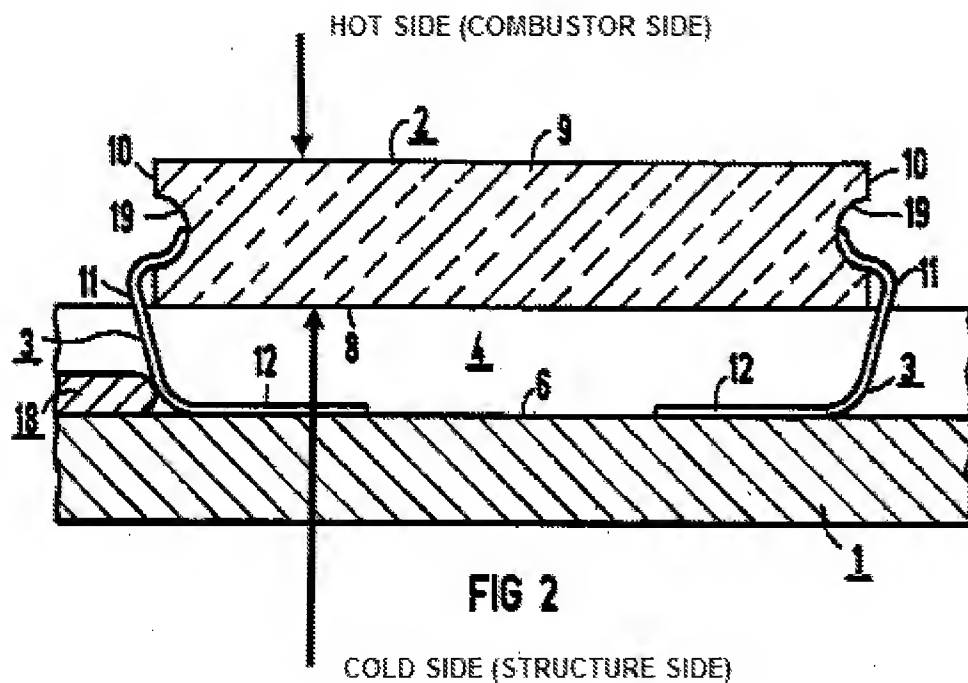
9. Claims 22-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maghon in view of Gerendas and Schmahl as applied to claim 16 above, and further in view of Hosbein et al. (US Patent 2,387,663, hereinafter Hosbein)..

Regarding claims 22-24:



Maghon teaches:

- *a hot side (See Figure below) that faces away from the structure and towards the combustor;*
- *a cold side (See Figure below) that faces the structure;*
- *a number of peripheral surfaces (Fig. 1, 10);*
- *element retainers (Fig. 2, 3) that engage the second peripheral surfaces;*
- *securing sections (Fig. 1, 4);*



Maghon fails to teach a recess between the edges of the cold side and peripheral surface, however,

*Gerendas teaches:*

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*a recess (Fig. 1, 5) between the edges of cold side and peripheral surface;*

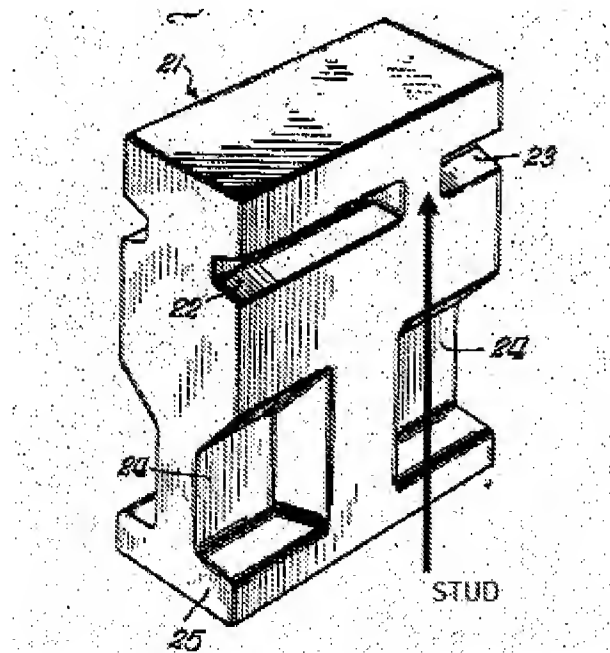
Maghon in view of Gerendas fails to teach the use of studs within the grooves on the peripheral surface; however Hosbein, a furnace arch, teaches the use of studs (Fig. 5) within the grooves (Fig. 5, 22, 23). Hosbein teaches the use of studs in order to allow for flexibility in arrangement of the retainers (Col. 4, lines 36-71). It would have been obvious to one of ordinary in the art at the time of the invention to add the stud and groove arrangement to the side of the tiles in Maghon's heat shield.

Regarding claims 25-26:

Reference the above comments regarding claims 22-24.

Hosbein teaches:

*a stud (See Figure below) that extends through the entire groove (Fig.5, 22,23);  
by extending through the entire groove the stud also extends through just part of  
the groove.*



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It would have been obvious to one having ordinary skill in the art at the time the invention was made to change the amount the stud extends through the groove depending on what is desired in the design, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CRAIG KIM whose telephone number is (571)270-1418. The examiner can normally be reached on Monday- Thursday 8 A.M.-6 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jackson can be reached on (571)272-4697. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/CRAIG KIM/

Examiner, Art Unit 4137

4/20/09

/Gary Jackson/

Supervisory Patent Examiner

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